APPENDIX J

ACOUSTICAL ASSESSMENT

Acoustical Assessment
Northern Gateway Logistics Center
City of Menifee, California

Prepared by:

Kimley-Horn and Associates, Inc.
1100 W. Town and Country Road, Suite 700
Orange, California 92868
Contact: Ms. Danielle Millar
714.939.1030

April 2024

TABLE OF CONTENTS

EXHIBITS

APPENDICES

LIST OF ABBREVIATED TERMS

ADT	average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CNEL	community equivalent noise level
L_{dn}	day-night noise level
dB	decibel
L_{eq}	equivalent noise level
MDC	Menifee Development Code
FHWA	Federal Highway Administration
FT	feet
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	hertz
in/sec	inches per second
L_{max}	maximum noise level
µPa	micropascals
L_{min}	minimum noise level
PPV	peak particle velocity
RMS	root mean square
VdB	vibration velocity level

1 INTRODUCTION

This report documents the results of an Acoustical Assessment completed for the Northern Gateway Logistics Center Project (Project). The purpose of this Acoustical Assessment is to evaluate the potential construction and operational noise and vibration levels associated with the Project and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project is generally located in the northern part of the City of Menifee (City), within Riverside County, California; see Exhibit 1: Regional Vicinity. The Project site is bounded by Evans Road to the east, McLaughlin Road to the west, Barnett Road to the west, and a stormwater channel to the north. The Project site is comprised of five parcels; refer to Table 1: Project Site Assessor Parcel Numbers.

The Project site is located approximately 0.21-mile (1,133 feet) east of Interstate 215 (I-215) and approximately 1.10-mile southwest of State Highway (SH) 74; see Exhibit 2: Site Vicinity.

Table 1: Project Site Assessor Parcel Numbers

APN
331-060-007
331-060-008
331-060-020
331-060-023
331-060-030

1.2 Project Description

The Project applicant proposes the development of approximately 398,252 square feet (SF) of warehouse spaces (including office and mezzanine space) and associated infrastructure on approximately 20.17 acres of land. The Project proposes two warehouse buildings with office and mezzanine space, 354 automobile parking spaces, 41 truck trailer parking spaces, 18 long-term bicycle parking spaces, and 52 dock doors. Building 1 is proposed to be 105,537 square feet (sq. ft.) consisting of 6,000 sq. ft. of office space and 99,537 sq. ft. of warehouse space and is located on the north side of the site. Building 2 is on the southern end of the site and is proposed to be 292,715 sq. ft. consisting of 8,000 sq. ft of office space, 7,000 sq. ft. of mezzanine, and 277,715 sq. ft. of warehouse area. Buildings 1 and 2 combined would consist of 398,252 sq. ft. of total building area. The proposed warehouse uses are considered speculative in nature, but may be used for receiving, storing, and distribution of manufactured goods. Refer to Exhibit 3: Site Plan for additional information.

Project Circulation and Parking

Regional access to the Project site would be provided from I-215 via the potential truck route, Ethanac Road.[1] Local access would be provided via Evans Road and Barnett Road. Project ingress and egress would

---

1 City of Menifee, *Menifee General Plan Exhibit C-7: Potential Truck Routes,* https://www.cityofmenifee.us/DocumentCenter/View/1024/C-7-Truck_Routes_HD0913?bidId=, accessed April 2024.

be provided via one 55-foot-wide driveway on Barnett Road and two 26-foot-wide driveways and one 60-foot-wide driveway on Evans Road. All Project driveways would be unsignalized.

Internal circulation consists of a 26-foot-wide fire lane that would allow for auto, truck, and emergency vehicles to drive throughout the Project site. The Project would provide 354 standard (9-feet by 18-feet) auto parking stalls and 41 (10-feet by 55-feet) trailer parking stalls. Lastly, the Project would provide dock doors located on the southern portion of the proposed industrial Building 1 and the northern portion of the propose industrial Building 2. See Exhibit 3 for driveway locations.

Project Phasing and Construction

The Project is anticipated to be developed in one phase. Construction is anticipated to occur over a duration of approximately 12 months, beginning in November 2024. The Project is expected to require approximately 1,519 cubic yards (CY) of soil export.

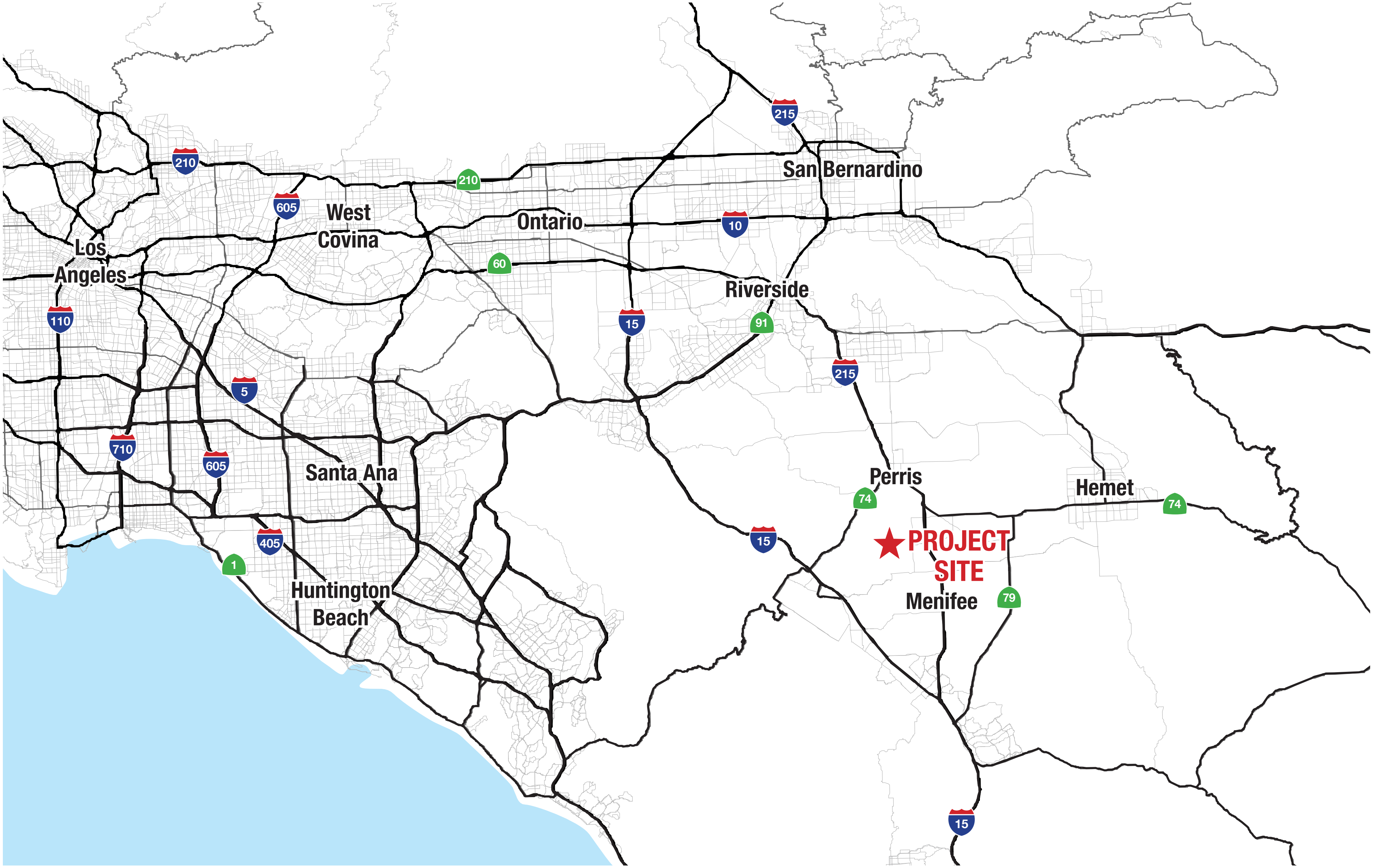


EXHIBIT 1: Regional Vicinity Map
Northern Gateway Logistics Center
City of Menifee

Not to Scale

Kimley»Horn
Expect More. Experience Better.

EXHIBIT 2: Site Vicinity
Northern Gateway Logistics Center
City of Menifee

Not to Scale

Kimley»Horn
Expect More. Experience Better.

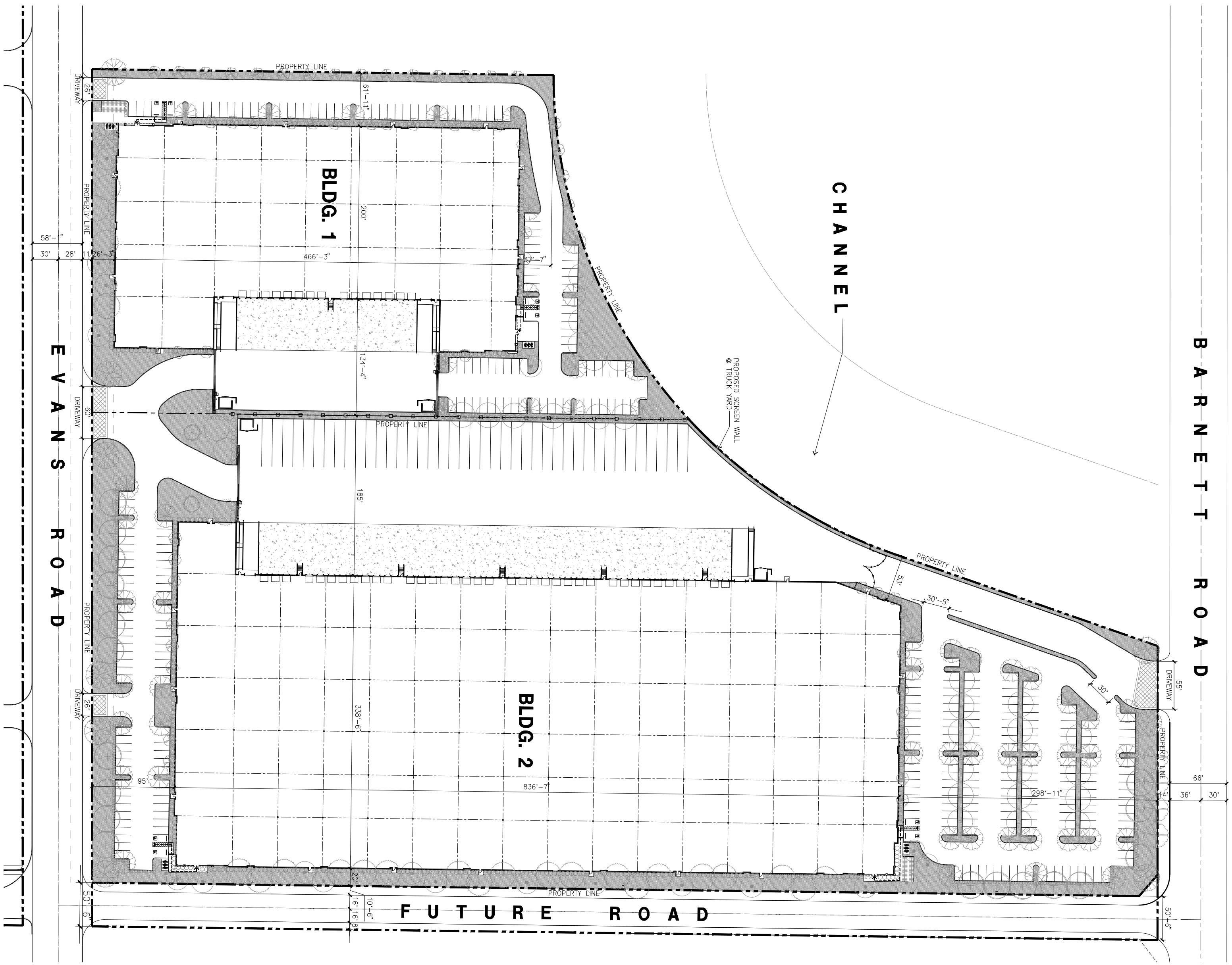


EXHIBIT 3: Site Plan
Northern Gateway Logistics Center
City of Menifee

Not to Scale

Kimley»Horn
Expect More. Experience Better.

2 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. The fundamental acoustics model consists of a noise source, a receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. The sound from individual local sources is superimposed on this background noise. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 2: Typical Noise Levels provides typical noise levels.

Table 2: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**– 70 –**	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	**– 60 –**	
		Large business office
Quiet urban daytime	**– 50 –**	Dishwasher in next room
Quiet urban nighttime	**– 40 –**	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	**– 0 –**	Lowest threshold of human hearing

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. Most commonly, environmental sounds are described in terms of the equivalent noise level (L_{eq}) that has the same acoustical energy as the summation of all the time-varying events. While L_{eq} represents the continuous sound pressure level over a given period, the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Each is applicable to this analysis and defined in Table 3: Definitions of Acoustical Terms.

Table 3: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in µPa (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 µPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01}, L_{10}, L_{50}, L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5 dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Because sound levels can vary markedly over a short period of time, a method for describing either the sound's average character (L_{eq}) or the variations' statistical behavior (L_{XX}) must be utilized. The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The predicted models' accuracy depends on various factors, such as the distance between the noise receptor and the noise source, the character of the ground surface (e.g., hard or soft), and the presence or absence of structures (e.g., walls or buildings) or topography, and how well model inputs reflect these conditions.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10.[2] When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness.[3] For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.[4]

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source.[5] Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.[6] No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed in this report.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the noise receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 15 dBA.[7] The way older homes in California were constructed generally

2 California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.
3 Ibid.
4 Ibid.
5 Ibid.
6 Ibid.
7 Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.

provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA.[8] Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:[9]

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

<u>Hearing Loss</u>. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.[10]

---

8 Compiled from James P. Cowan, *Handbook of Environmental Acoustics,* 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979.

9 Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and Federal Highway Administration, *Noise Fundamentals,* 2017.

10 U.S. Department of Labor, Occupational Safety and Health Standards, *29 CFR 1910* (Occupational Noise Exposure).

<u>Annoyance</u>. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.[11]

2.2 Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and is expressed in terms of inches-per-second (in/sec). The RMS velocity is defined as the average of the squared amplitude of the signal and is expressed in terms of velocity decibels (VdB). The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

<u>Table 4: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations</u>**,** displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the individual's sensitivity. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of in/sec is used to evaluate construction-generated vibration for building damage and human complaints.

11 Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Table 4: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.01	Barely Perceptible	--	--
0.04	Distinctly Perceptible	--	--
0.1	Strongly Perceptible	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage
0.2	--	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)

PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020 and Federal Transit administration, *Transit Noise and Vibration Assessment Manual*, 2018.

3 REGULATORY SETTING

To limit population exposure to physically or psychologically damaging as well as intrusive noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

3.1 State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by Governor's Office of Planning and Research's *General Plan Guidelines and Technical Advisories, Appendix D*.[12] The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, hotel rooms, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings and habitable rooms (including hotels), the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.2 Local

City of Menifee General Plan

The City of Menifee General Plan Noise Element contains the following goals and policies that address noise:

<u>Noise Element N-1: Noise Sensitive Land Uses</u>

Goal: N-1: Noise-sensitive land uses are protected from excessive noise and vibration exposure.

Policies and Regulation:

- **N-1.1:** Assess the compatibility of proposed land uses with the noise environment when preparing, revising, or reviewing development project applications.

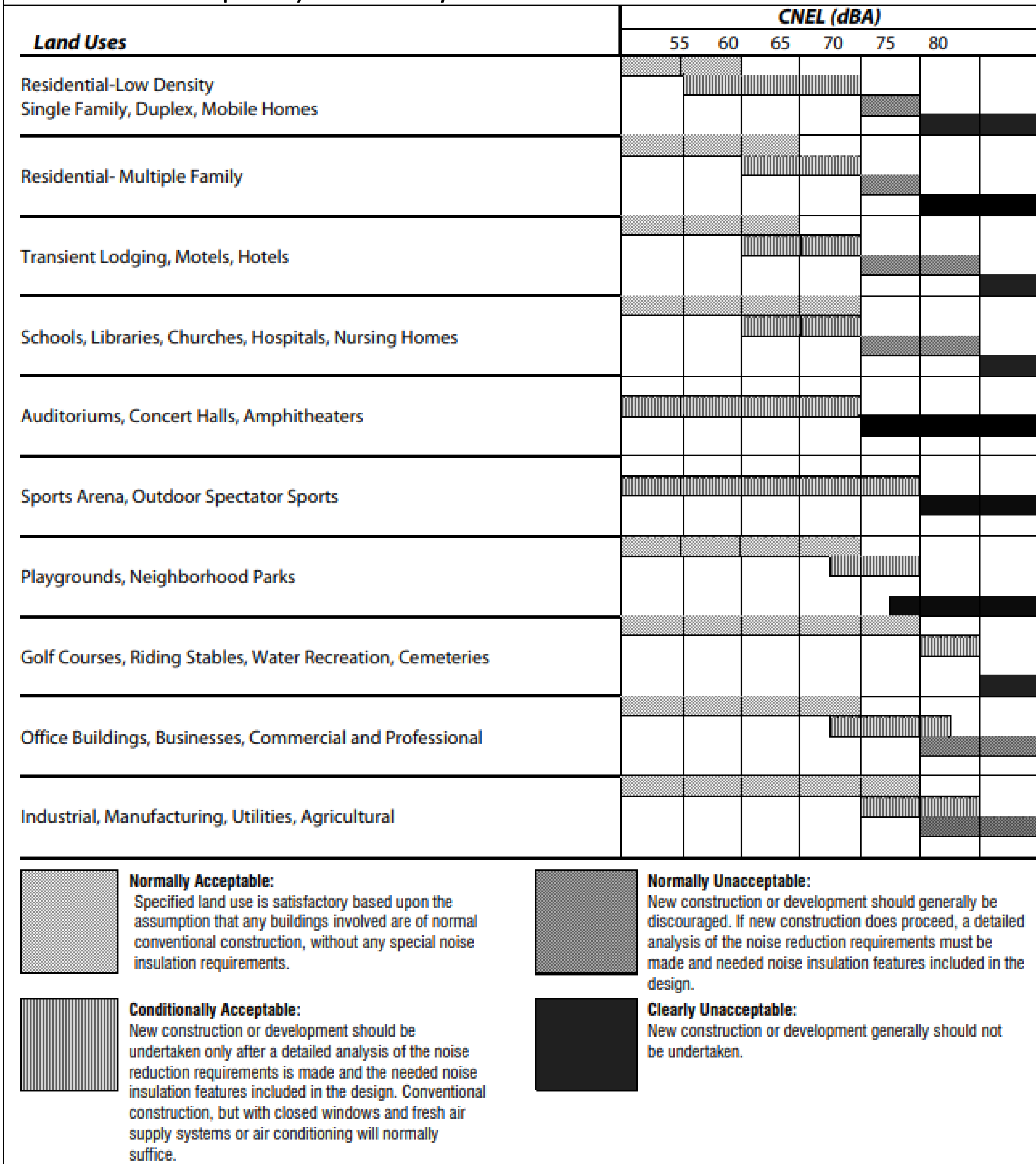
[12] General Plan Guidelines – Appendix D, Noise Element Guidelines https://opr.ca.gov/docs/OPR_Appendix_D_final.pdf

- **N-1.2:** Require new projects to comply with the noise standards of local, regional, and state building code regulations, including but not limited to the city's Municipal Code, Title 24 of the California Code of Regulations, the California Green Building Code, and subdivision and development codes.
- **N-1.3:** Require noise abatement measures to enforce compliance with any applicable regulatory mechanisms, including building codes and subdivision and zoning regulations, and ensure that the recommended mitigation measures are implemented.
- **N-1.4:** Regulate the control of nuisances, such as residential party noise and barking dogs, through the city's Municipal Code.
- **N-1.5:** Protect agricultural uses from noise complaints that may result from routine farming practices.
- **N-1.6:** Coordinate with the County of Riverside and adjacent jurisdictions to minimize noise impacts from adjacent land uses along the city's boundaries, especially its rural edges.
- **N-1.7:** Mitigate exterior and interior noises to the levels listed in the table below (*see Table 6 below*) to the extent feasible, for stationary sources adjacent to sensitive receptors:
- **N-1.8:** Locate new development in areas where noise levels are appropriate for the proposed uses. Consider federal, state, and city noise standards and guidelines as a part of new development review.
- **N-1.9:** Limit the development of new noise-producing uses adjacent to noise-sensitive receptors and require that new noise-producing land be are designed with adequate noise abatement measures.
- **N-1.10:** Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors adjacent to the I-215 or within the projected noise contours of any adjacent airports.
- **N-1.11:** Discourage the siting of noise-sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation.
- **N-1.12:** Minimize potential noise impacts associated with the development of mixed-use projects (vertical or horizontal mixed-use) where residential units are located above or adjacent to noise-generating uses.
- **N-1.13:** Require new development to minimize vibration impacts to adjacent uses during demolition and construction.

Land Use Compatibility

The noise criteria identified in the City of Menifee Noise Element are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Table 5: Land Use Compatibility for Community Noise Environments, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The Land Use Compatibility for Community Noise Exposure matrix describes categories of compatibility and not specific noise standards.

Table 5: Land Use Compatibility for Community Noise Environments



Source: California Office of Noise Control. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

Source: City of Menifee, *City of Menifee General Plan Noise Background Document and Definitions*, Table N-b3.

City of Menifee Development Code

The Menifee Development Code (MDC), establishes the following noise provisions relative to the Project:

- All construction activities shall adhere to MDC Section 9.210.060(C), which requires projects within the City located within one-quarter of a mile from an occupied residence to operate Monday through Saturday, except nationally recognized holidays, from 6:30 a.m. to 7:00 p.m. and prohibits construction from occurring on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer. Compliance with MDC Section 9.210.060(C) would reduce construction-related noise impacts.
- Menifee MC Section 9.09 (Noise Ordinance) provides exemptions for noise from certain sources. According to Section 9.09.020 – General Exemptions, exemptions relevant to the Project include:
    - Property maintenance including lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.
    - Motor vehicles, other than off-highway vehicles.
    - Heating and air conditioning equipment in proper repair.
- MDC Section 9.210.060(D) discusses the noise standards for stationary noise sources and states the following: No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior and interior sound level on any other occupied property to exceed the sound level standards set forth in Table 6: City of Menifee Noise Ordinance Standards below.

Table 6: City of Menifee Stationary Source Noise Standards

Land Use (Residential)	Interior Standards	Exterior Standards
10 p.m. - 7 a.m.	40 L_{eq} (10 minute)	45 L_{eq} (10 minute)
7 a.m. - 10 p.m.	55 L_{eq} (10 minute)	65 L_{eq} (10 minute)

Source: City of Menifee, *City of Menifee Development Code, Table 9.210.060-1 Stationary Source Noise Standards*, 2021.

- MDC Section 9.210.060(B) – General Exemptions, provides exemptions for noise from certain sources. According to Section 9.210.060(B) – General Exemptions, exemptions relevant to the Project include:
    - Property maintenance including lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.
    - Motor vehicles, other than off-highway vehicles
    - Heating and air conditioning equipment in proper repair.

City of Menifee Design Guidelines Industrial Good Neighbor Policies

The City Council approved the change to add the Industrial Good Neighbor Policies as Appendix A to the City's existing Design Guidelines on March 2, 2022. The purpose of the Good Neighbor Policies (Policies) is to provide local government and developers with ways to address environmental and neighborhood compatibility issues associated with permitting warehouse, logistics, and distribution facilities. These Policies are designed to promote economic vitality and sustainability of businesses, while still protecting the general health, safety, and welfare of the public and sensitive receptors within the City. The following noise-related guidelines are applicable to the Project:

- When not adjacent to sensitive receptors, truck courts and trailer parking should face internal to the site when feasible to avoid screen walls being the most prominent street feature. A "wingwall" may also be installed perpendicular to the loading dock areas to further attenuate noise related to truck activities and address aesthetics by screening the loading area.
- Use of perimeter walls, buildings, and/or enhanced landscaping to reduce noise impacts as appropriate.
- If a public address (PA) system is being used in conjunction with an industrial use, the PA system shall be oriented away from sensitive receptors and the volume set at a level not readily audible past the property line.

4 EXISTING CONDITIONS

4.1 Existing Noise Sources

The City is impacted by various noise sources. Mobile sources of noise, especially cars, trucks, and trains are the most common and significant sources of noise. Other noise sources are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise.

Mobile Sources

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the Project Traffic Study (prepared by Kimley-Horn, September 2023). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (also referred to as energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data indicates that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels.

The average daily noise levels along roadway segments in proximity to the Project site are included in Table 7: Existing Traffic Noise Levels. Table 7 shows the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 40.6 dBA CNEL to 72.3 dBA CNEL 100 feet from the centerline. As previously described, CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Table 7: Existing Traffic Noise Levels

Roadway Segment		ADT	dBA CNEL 100 Feet from Roadway Centerline
Ethanac Road	Evans Road to Case Road	16,845	70.4
	Case Road to I-215 SB Ramps	24,114	72.3
	I-215 SB Ramps to I-215 NB Ramps	19,929	69.4
Evans Road	Ethanac Road to McLaughlin Road	30	40.6
Barnett Road	Ethanac Road to McLaughlin Road	2,950	59.9

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Based on traffic data within the Traffic Study, prepared by Kimley-Horn, September 2023. Refer to Appendix B: Noise Modeling Data for traffic noise modeling assumptions and results.

Stationary Sources

The nearest sources of stationary noise in the Project vicinity are generated by the following existing uses: commercial uses to the northeast; single-family residential properties to the south and west; industrial uses to the west; and agricultural uses to the northwest. Noise sources from residential and agricultural uses typically include mechanical equipment such as HVAC, automobile related noise such as cars starting and doors slamming, and landscaping equipment. Noise sources from commercial and industrial uses typically include mechanical equipment (e.g., HVAC and mechanical tools) truck idling, and truck maneuvering. The noise associated with these sources may represent a single-event noise occurrence or short-term noise.

4.2 Noise Measurements

To quantify existing ambient noise levels in the Project area, Kimley-Horn conducted four short-term noise measurements on November 8, 2023; see Appendix A: Existing Ambient Noise Measurements. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute measurements were taken between 12:01 p.m. and 1:10 p.m. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels and sources of noise measured at each location are listed in Table 8: Existing Noise Measurements and shown on Exhibit 4: Noise Measurement Locations.

Table 8: Existing Noise Measurements

Site	Location	Measurement Period	Duration	L_{eq} (dBA)
ST-1	Along Evans Road, approximately 533 feet from Ethanac Road	1:00 – 1:10 p.m.	10 Minutes	59.0
ST-2	Along Evans Road, approximately 750 feet from McLaughlin Road	12:40 – 12:50 p.m.	10 Minutes	50.0
ST-3	Northeast corner of Sagewood Way and Pearl Blossom Way	12:21 – 12:31 p.m.	10 Minutes	56.2
ST-4	Along Barnett Road, approximately 945 feet from McLaughlin Road	12:01 – 12:11 p.m.	10 Minutes	60.0
Source: Noise measurements taken by Kimley-Horn, November 8, 2023. See Appendix A for noise measurement results.				

4.3 Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive uses typically include residences, hospitals, schools, childcare facilities, and places of assembly. Vibration sensitive receivers are generally similar to noise sensitive receivers but may also include businesses, such as research facilities and laboratories that use vibration-sensitive equipment. The nearest sensitive receptors to the Project site are residential uses to the south and west, as well as a park to the southwest. Sensitive land uses nearest to the Project are shown in Table 9: Sensitive Receptors.

Table 9: Sensitive Receptors

Receptor Description	Distance and Direction from the Project[1]	Description
Single-family Residences	405 feet to the south	Along McLaughlin Road, City of Menifee
Single-family Residences	690 feet to the west	Along Corsica Lane, City of Menifee
Nova Park	700 feet to the southwest	Along Starr Drive, City of Menifee
1. Distance measured from the Project boundary line to the property line of the sensitive receptor.		
Source: Google Earth, 2023.		

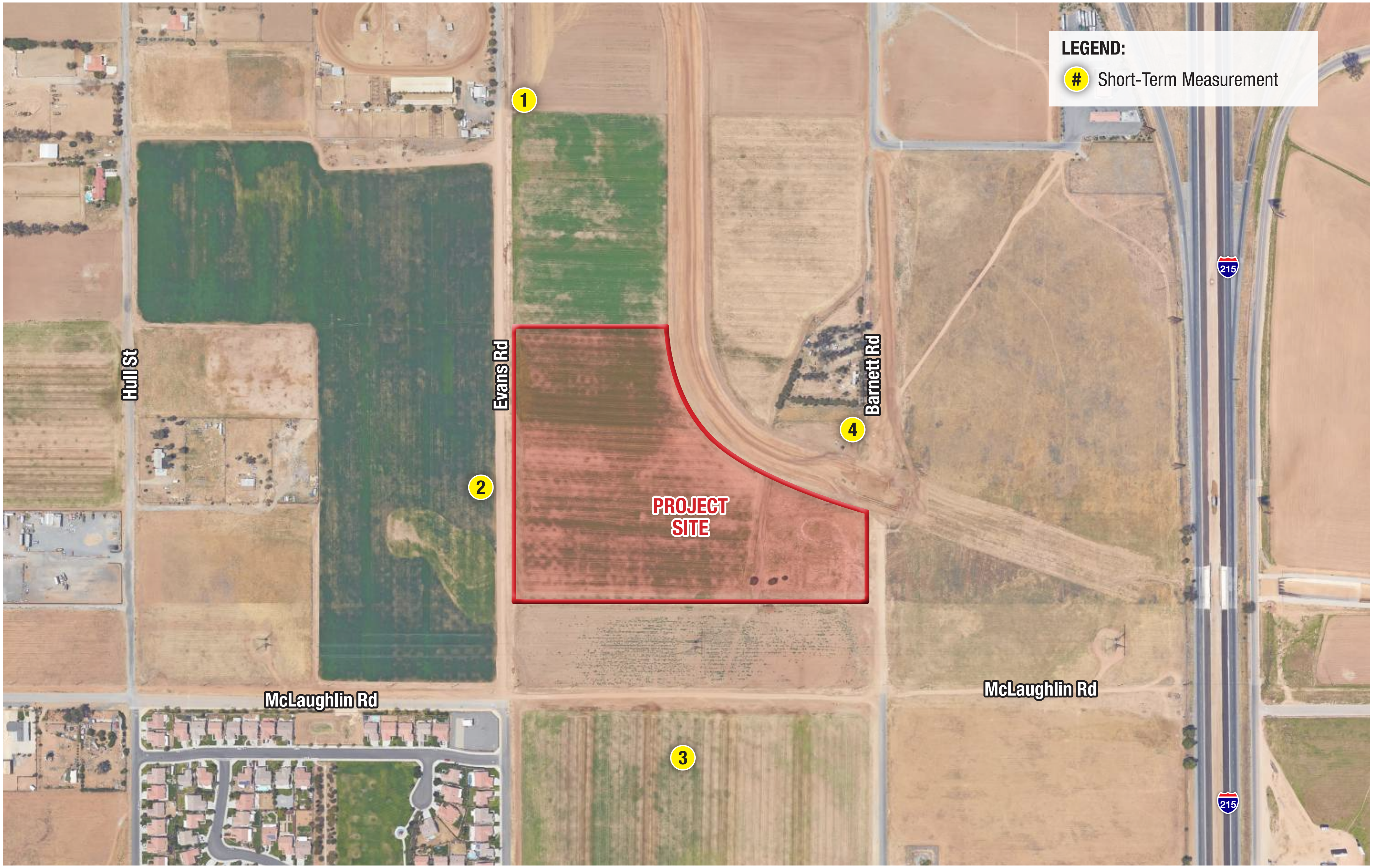


EXHIBIT 4: Noise Measurement Locations

Northern Gateway Logistics Center

City of Menifee

Not to Scale

Kimley»Horn
Expect More. Experience Better.

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains analysis guidelines related to noise impacts. These guidelines have been used by the City to develop thresholds of significance for this analysis. A project would create a significant environmental impact if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive ground-borne vibration or ground-borne noise levels; and
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Thresholds

Construction Noise

The City of Menifee does not establish quantitative construction noise standards and only limits the construction activities timeframe; therefore, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for non-residential uses to evaluate construction noise impacts.[13]

Operational Noise

Operational noise is evaluated based on the standards within the MDC and General Plan. MDC Section 9.210.060(D) identifies a daytime (7:00 a.m. – 10:00 p.m.) standard of 55 dBA (interior) and 65 dBA (exterior) for residential receptors and a nighttime (10:00 p.m. – 7:00 a.m.) standard of 40 dBA (interior) and 45 dBA (exterior); refer to Table 6.

The City provides noise and land use compatibility standards (i.e., noise standards using a 24-hour metric such as L_{dn} or CNEL and with Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable designations) in the City of Menifee General Plan Noise Background Document and Definitions document. A potentially significant impact would occur if the Project would cause ambient noise levels to increase by 3 dBA CNEL or more and the resulting noise falls on a noise-sensitive land use that exceeds the noise and land use compatibility standards (i.e., causing the noise level of a noise sensitive land use within an area to be categorized as either "Normally Unacceptable" or "Clearly Unacceptable"). Note that noise level changes less than 3 dBA are not detectable by the human ear.

Noise levels up to 60 dBA CNEL are considered Normally Acceptable and noise levels up to 70 dBA CNEL are considered Conditionally Acceptable for single-family residential uses. Meeting the conditionally acceptable standards are appropriate as long as the 45 dBA interior noise standard can be met. Therefore, the proposed Project would result in a potentially significant traffic noise impact if Project traffic would

13 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-2, Page 179, September 2018.

increase the baseline traffic noise level by 3 dBA CNEL and exceed the applicable land use compatibility standard. The environmental baseline is the Without Project condition.

Vibration

The City currently does not have a significance threshold to assess vibration impacts. The FTA and Caltrans identify the vibration threshold for human annoyance, vibrations levels of 0.4 in/sec PPV is when vibrations are considered severe by people subjected to continuous vibrations and levels of 0.2 in/sec is used for building damage.[14]

5.2 Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). Construction noise is assessed in dBA L_{eq}. This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Construction noise modeling was conducting using the FHWA Roadway Construction Noise Model (RCNM). Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise. The City of Menifee does not establish quantitative construction noise standards. As noted above, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for non-residential uses to evaluate construction noise impacts.

Operations

The analysis of the Without Project and With Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels are collected from field noise measurements and other published sources from similar types of activities are used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise level from stationary sources can vary throughout the day. On-site operational noise levels from the proposed Project were evaluated using SoundPLAN. SoundPLAN computes noise levels at noise sensitive areas through a series of adjustments to reference sound levels. SoundPLAN also accounts for topography, groundcover type, and intervening structures. Reference noise levels are used to estimate the Project's operational noise impacts from stationary sources. Operational noise is evaluated based on the standards within the MDC and General Plan.

14 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020 and Federal Transit administration, Transit Noise and Vibration Assessment Manual, 2018.

An analysis was conducted of the Project's effect on traffic noise conditions at off-site land uses. Without Project traffic noise levels were compared to With Project traffic noise levels. The environmental baseline is the Without Project condition. The Without Project and With Project traffic noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures (walls and buildings), barriers, and topography. The noise attenuating effects of changes in elevation, topography, and intervening structures were not included in the model. Therefore, the modeling effort is considered a worst-case representation of the roadway noise. In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable.

Vibration

Ground-borne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical ground-borne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential ground-borne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria.

For a structure built traditionally, without assistance from qualified engineers, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any vibration damage. FTA guidelines show that modern engineered buildings built with reinforced-concrete, steel or timber can withstand vibration levels up to 0.50 in/sec and not experience vibration damage. The Caltrans 2020 *Transportation and Construction Vibration Guidance Manual* identifies a vibration threshold of 0.4 in/sec PPV (which is considered severe by people subjected to continuous vibrations) for human annoyance. Vibrations thresholds of 0.4 in/sec PPV is used for human annoyance and a threshold of of 0.2 in/sec is used for building damage.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Acoustical Impacts

Threshold 6.1 Would the project result in a generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

On-Site Construction Noise. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential neighborhoods near the construction site. However, it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at a single point near sensitive receptors.

Construction activities would include site preparation, grading, infrastructure improvements, building construction, paving, and architectural coating. Such activities could require dozers and tractors during site preparation; excavators, graders, dozers, tractors, and scrapers during grading; tractors and pavers during infrastructure improvements; cranes, generators, tractors, forklifts, and welders during building construction; pavers, rollers, and a pavement scarifiers during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Typical noise levels associated with individual construction equipment are listed in Table 10: Typical Construction Noise Levels.

Table 10: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 100 feet from Source[1]
Air Compressor	80	74
Backhoe	80	74
Compactor	82	76
Concrete Mixer	85	79
Concrete Pump	82	76
Concrete Vibrator	76	70
Crane, Mobile	83	77
Dozer	85	79
Generator	82	76
Grader	85	79
Impact Wrench	85	79
Jack Hammer	88	82
Loader	80	74
Paver	85	79
Pneumatic Tool	85	79
Pump	77	71
Roller	85	79

Table 10: Typical Construction Noise Levels		
Equipment	**Typical Noise Level (dBA) at 50 feet from Source**	**Typical Noise Level (dBA) at 100 feet from Source[1]**
Saw	76	70
Scraper	85	79
Shovel	82	76
Truck	84	78
Notes: 1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20Log(d_1/d_2)$ Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance		
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.		

The MDC does not establish quantitative exterior construction noise standards however, Section 9.210.060 states that construction activities within one-quarter mile of an occupied residence can only occur Monday through Saturday, except nationally recognized holidays, from 6:30 a.m. to 7:00 p.m. While the MDC does not establish quantitative construction noise standards, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses to evaluate construction noise impacts.[15]

Project Construction Noise Levels

The noise levels calculated in Table 11: Project Construction Noise Levels, show the exterior construction noise for the Project conservatively without accounting for attenuation from existing physical barriers and improvements in the technology of construction equipment, which today generate less noise. Construction noise has been calculated with FHWA's Roadway Construction Noise Model (RCNM). The nearest noise-sensitive receptors are residential uses located approximately 405 feet to the south and 690 feet to the west of the Project site. Construction equipment was assumed to operate simultaneously to represent a worst-case noise scenario as construction activities would routinely be spread throughout the construction site and would operate at different intervals.

15 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-2, Page 179, September 2018.

Table 11: Project Construction Noise Levels

Construction Phase	Land Use	Direction	Distance (feet)[1]	Worst Case Modeled Exterior Noise Level (dBA L_{eq})[2]	Noise Threshold (dBA L_{eq})[3]	Exceeded?
Site Preparation	Residential	South	823	63.3	80	No
	Residential	West	1,142	60.5	80	No
Grading	Residential	South	823	63.9	80	No
	Residential	West	1,142	61.0	80	No
Infrastructure Improvements	Residential	South	823	57.4	80	No
	Residential	West	1,142	54.5	80	No
Building Construction	Residential	South	823	65.0	80	No
	Residential	West	1,142	62.2	80	No
Paving	Residential	South	823	62.2	80	No
	Residential	West	1,142	59.3	80	No
Architectural Coating	Residential	South	823	49.4	80	No
	Residential	West	1,142	46.5	80	No
Overlapping Phases						
Site Preparation and Grading	Residential	South	823	66.6	80	No
	Residential	West	1,142	63.8	80	No
Grading, Building Construction, and Paving	Residential	South	823	68.6	80	No
	Residential	West	1,142	65.8	80	No
Building Construction, Paving, Infrastructure Improvements, and Architectural Coating	Residential	South	823	67.4	80	No
	Residential	West	1,142	64.5	80	No

Notes:
1. Following FTA methodology, all equipment is assumed to operate at the center of the Project site because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the distance used in the RCNM model was approximately 823 feet and 1,142 feet to the nearest sensitive receptors to the south and west of the construction zone, respectively.
2. Modeled noise levels conservatively assume the simultaneous operation of all pieces of equipment.
3. Federal Transit Administration noise threshold is 80 dBA L_{eq} for residential uses.

Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix B for noise modeling results.

FTA's construction threshold is an 8-hour L_{eq}, which accounts for the percentage of time each individual piece of equipment operates under full power in that period. Additionally, construction equipment would move throughout the site during that period. Following FTA methodology, when calculating construction noise, all construction equipment is assumed to operate simultaneously at the center of the active construction zone to represent an average distance throughout the day. During construction, equipment would operate throughout the site and not all the equipment would be operating at the point closest to the sensitive receptors and considering the distance between the center of the Project site and the sensitive receptors is a reasonable assumption.

Table 11 shows that the construction noise levels would not exceed the applicable FTA construction threshold. The highest exterior noise level at residential receptors would occur during the overlap of the grading, building construction, and paving phases and would be 68.6 dBA which is below the FTA's 80 dBA threshold. Construction equipment would operate throughout the Project site and the associated noise levels would not occur at a fixed location for extended periods of time. Although sensitive uses may be exposed to elevated noise levels during Project construction, these noise levels would be acoustically dispersed throughout the Project site and not concentrated in one area near surrounding sensitive uses. Construction noise would therefore have a less than significant impact.

Operations

Implementation of the proposed Project would create new sources of noise in the Project vicinity. The major noise sources associated with the Project would include:

- Mechanical equipment (i.e., trash compactors, air conditioners);
- Slow moving trucks on the Project site, approaching and leaving the loading areas;
- Activities at the loading areas (i.e., maneuvering and idling trucks, equipment noise);
- Parking areas (i.e., car door slamming, car radios, engine start-up, and car pass-by); and
- Off-site traffic noise.

Each noise source is discussed in more detail below.

On-Site Operational Noise Sources

Mechanical Equipment

The nearest sensitive receptors are residential uses located south of the Project site along McLaughlin Road. Potential stationary noise sources related to long-term operation of the Project would include mechanical equipment such as rooftop heating, ventilation, and air conditioning (HVAC) units. HVAC mechanical equipment generates noise levels of approximately 52 dBA at 50 feet.[16] HVAC units were modeled as point sources on the rooftop of the warehouse buildings in SoundPLAN. A total of twenty-one HVAC units were modeled, including six on Building 1 and fifteen on Building 2. This equipment would run continuously to regulate the temperature of the building.

On-Site Traffic

On-site Project traffic would consist of trucks in the truck court areas and access driveways to the east and west of the warehouse buildings. On-site vehicle movements from heavy trucks were modeled as a roadway noise source using daily trip generation data from the Project Traffic Study (prepared by Kimley-Horn, September 2023). The Traffic Study indicated the Project would generate 184 daily truck trips. Heavy truck traffic traveling at 15 miles per hour generates an hourly noise level of approximately 64.3 dBA $L_{eq(h)}$ at a distance of 50 feet.[17] Truck deliveries are anticipated to occur during normal daytime hours (between 7:00 am and 10:00 pm) and during nighttime hours (between 10:00 p.m. and 7:00 a.m.). Noise from truck delivery movements on the proposed site were modeled in SoundPLAN.

Parking Areas

The Project would provide approximately 354 automobile parking stalls and 41 truck trailer parking stalls in total. Automobile parking stalls would be located throughout the Project site, while truck trailer parking stalls would be located in the center of the Project site. The Project Traffic Study indicated a volume of 72 peak hour passenger vehicles at the Project site. Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are usually based on a time-averaged scale

16 Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, 2015.

17 Federal Highway Administration, *Federal Highway Traffic Noise Prediction Model, FHWA-RD77-108*, 1978.

such as the CNEL or L_{eq} scale (e.g., MDC Section 9.210.060(D) utilizes a 10-minute L_{eq} scale). The maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 53 to 61 dBA[18] and may be an annoyance to adjacent noise-sensitive receptors. However, parking noise events would be instantaneous and short-term in duration. Parking, driveway, and noise from on-site vehicle circulation would be consistent with existing noise in the site vicinity and would be partially masked by background traffic noise from motor vehicles traveling along the surrounding roadways. Noise from on-site parking lot movements were modeled as parking lot sources in SoundPLAN.

Combined On-Site Noise Levels

The noise levels associated with mechanical equipment, on-site vehicle circulation, and parking lot noise were modeled with the SoundPLAN software. SoundPLAN allows computer simulations of noise situations, and creates noise contour maps using reference noise levels, topography, point and area noise sources, mobile noise sources, and intervening structures. Inputs to the SoundPLAN model included ground topography and ground type, existing and proposed intervening structures, noise source locations and heights, receiver locations, and sound power level data. The SoundPLAN run for Project operations conservatively assumes the simultaneous operation of all on-site noise sources by time period.

Utilizing the reference noise level data described above, SoundPLAN was used to calculate noise levels at the nearest sensitive receptors surrounding the Project site. It should be noted that predicted noise levels are conservative estimates since it was assumed that all equipment and operational activity at the Project site would occur in a constant, simultaneous manner during the daytime and nighttime hours. In reality, it is anticipated that most of these noise sources would occur intermittently throughout the day and night (except for rooftop HVAC which would operate in a steady-state manner). The modeled Project noise levels are provided in Table 12: Project Operational Noise Levels.

Section 9.210.060(D) of the MDC establishes an exterior daytime limit of 65 dBA L_{eq} and an exterior nighttime limit of 45 dBA L_{eq} for noise sources. As shown in Table 12, Project-generated noise levels at the nearest off-site properties would range from 29.2 dBA L_{eq} to 46.7 dBA L_{eq} during the daytime and would not exceed the MDC noise limit of 65 dBA L_{eq}. Similarly, Project-generated noise levels during the nighttime would range from 28.9 dBA L_{dn} to 43.4 dBA L_{eq} and would not exceed the MDC noise limit of 45 dBA L_{eq}. As such, Project noise impacts from on-site operations would be less than significant.

[18] Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

Table 12: Project Operational Noise Levels								
Receptor No.	**Land Use**	**Direction from Project Site**	**Daytime**			**Nighttime**		
			Modeled Noise Level, dBA L_{eq}	**City Noise Standard, dBA L_{eq}**	**Exceeds Standard?**	**Modeled Noise Level, dBA L_{eq}**	**City Noise Standard, dBA L_{eq}**	**Exceeds Standard?**
1	Residential	Southwest	35.2	65	No	34.8	45	No
2	Residential	Southwest	36.1	65	No	35.7	45	No
3	Residential	Southwest	37.4	65	No	36.7	45	No
4	Residential	Southwest	37.7	65	No	37.2	45	No
5	Residential	Southwest	36.8	65	No	36.4	45	No
6	Residential	Southwest	36.0	65	No	35.6	45	No
7	Residential	Southwest	33.9	65	No	33.5	45	No
8	Residential	Southwest	33.2	65	No	32.8	45	No
9	Residential	Southwest	32.5	65	No	32.2	45	No
10	Residential	Southwest	31.8	65	No	31.5	45	No
11	Residential	West	38.1	65	No	36.6	45	No
12	Residential	West	36.0	65	No	34.8	45	No
13	Residential	West	33.5	65	No	32.6	45	No
14	Residential	South	39.1	65	No	39.1	45	No
15	Residential	South	39.3	65	No	39.3	45	No
16	Residential	South	38.9	65	No	38.9	45	No
17	Residential	South	38.2	65	No	38.2	45	No
18	Residential	South	37.2	65	No	37.2	45	No
19	Residential	South	37.4	65	No	37.4	45	No
20	Residential	South	36.1	65	No	36.0	45	No
21	Residential	South	34.9	65	No	34.7	45	No
22	Residential	Northwest	30.5	65	No	30.1	45	No
23	Residential	Northwest	29.2	65	No	28.9	45	No
24	Residential	Northwest	29.8	65	No	29.5	45	No
25	Residential	East	46.7	65	No	43.4	45	No
26	Residential	Southeast	36.4	65	No	36.4	45	No
27	Residential	Southeast	35.6	65	No	35.6	45	No
28	Residential	Southeast	34.5	65	No	34.5	45	No
29	Residential	Southeast	33.4	65	No	33.3	45	No
30	Residential	Southeast	32.3	65	No	32.3	45	No
31	Residential	Southeast	31.3	65	No	31.2	45	No
32	Residential	Southeast	35.6	65	No	35.6	45	No
33	Residential	Southeast	34.8	65	No	34.8	45	No
34	Residential	Southeast	34.0	65	No	34.0	45	No
Source: SoundPLAN Essential Version 5.1. Refer to Appendix B for noise modeling results.								

Off-Site Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. Based on the Traffic Study, the proposed Project would result in approximately 681 daily trips. The Opening Year "Opening Year Without Project" and "Opening Year With Project" scenarios are compared in Table 13: Project Traffic Noise Levels. Table 13 shows roadway noise levels without the Project would range from 58.9 dBA CNEL to 74.9 dBA CNEL and between 61.2 dBA CNEL and 75.1 dBA CNEL with the Project.

In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. Potential impacts occur when the Project change exceeds 3 dBA and the Normally Acceptable land use compatibility standard is exceeded (i.e., both must occur). As depicted in Table 13, although the "Opening Year With Project" scenario traffic noise levels would exceed the Normally Acceptable Standard along Ethanac Road, noise levels would not exceed the 3.0 dBA increase significance threshold along any of the surrounding roadways. As a result, the Project would not result in a perceptible increase in traffic noise levels and impacts would be less than significant.

Table 13: Project Traffic Noise Levels

Roadway Segment		Opening Year Without Project		Opening Year With Project		Change	Change Threshold	Normally Acceptable Standard (dBA CNEL)[2]	Significant Impact[3]
		ADT	dBA CNEL[1]	ADT	dBA CNEL[1]				
Ethanac Road	Evans Road to Case Road	36,867	73.8	37,319	73.9	0.1	3.0	70	No
	Case Road to I-215 SB Ramps	44,427	74.9	45,239	75.1	0.1	3.0	70	No
	I-215 SB Ramps to I-215 NB Ramps	34,226	71.8	34,657	71.9	0.2	3.0	70	No
Evans Road	Ethanac Road to McLaughlin Road	2,008	58.9	2,609	61.2	2.4	3.0	75	No
Barnett Road	Ethanac Road to McLaughlin Road	6,108	63.1	6,468	61.4	-1.7	3.0	70	No

ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level.

Notes:
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.
2. The lowest Normally Acceptable land use compatibility noise standard for developed uses along each roadway segment is conservatively used to analyze impacts; see Table 5.
3. Potential impacts occur when the Project change exceeds 3 dBA and the Normally Acceptable land use compatibility standard is exceeded (i.e., both must occur).

Source: Based on traffic data within the Traffic Study, prepared by Kimley-Horn, September 2023. Refer to Appendix B for traffic noise modeling assumptions and results.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 6.2 Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels?

Construction Vibration

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. Construction on the Project site would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any construction vibration damage.

Table 14: Typical Construction Equipment Vibration Levels lists vibration levels at 25 feet for typical construction equipment. Vibration levels at 435 feet, the distance from the Project boundary to the nearest existing structure is also included in Table 14. Ground-borne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 14, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from less than 0.0001 to 0.0012 in/sec PPV at 435 feet from the source of activity.

Table 14: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 435 Feet (in/sec)[1]
Large Bulldozer	0.089	0.0012
Loaded Trucks	0.076	0.0010
Jackhammer	0.035	0.0005
Small Bulldozer/Tractors	0.003	<0.0001

Notes:
1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018; D = the distance from the equipment to the receiver.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

As noted above, the nearest structure to the Project construction site is approximately 435 feet away. Table 14 shows that at 435 feet the vibration velocities from construction equipment would not exceed 0.0012 in/sec PPV, which is below the FTA's 0.20 in/sec PPV threshold for building damage and below the 0.4 in/sec PPV annoyance threshold. It is also acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. Therefore, vibration impacts associated with Project construction would be less than significant.

Operational Vibration

The Project would include truck movement activity at the Project site. These movements would generally be low-speed (i.e., less than 15 miles per hour) and would occur over new, smooth surfaces. For perspective, Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and quite frequently buses, generate the highest earthborn vibrations of normal traffic." Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that "vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks and poor roadway conditions (while such trucks were moving at freeway speeds). This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings).[19] Since the Project's truck movements would be at low speed (not at freeway speeds) and would be over smooth surfaces (not under poor roadway conditions), Project-related vibration associated with truck activity would not result in excessive ground-borne vibrations; no vehicle-generated vibration impacts would occur. In addition, there are no sources of substantial ground-borne vibration associated with the Project, such as rail or subways. The Project would not create or cause any vibration impacts due to operations.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 6.3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The public airport nearest to the Project site is the Perris Valley Airport, located approximately 1.7 miles to the northwest. According to the *Riverside County Airport Land Use Compatibility Plan Policy Document*, the Project site is not located within the Perris Valley Airport 65 CNEL noise contour.[20] As such, Perris Valley Airport noise levels would not exceed the City's normally acceptable noise standard (75 dBA CNEL) for industrial uses; refer to Table 5. Additionally, the Project site is not located within the vicinity of a private airstrip. Thus, the Project would not expose substantial numbers of people to excessive noise levels from airports and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

---

19 California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol ("TeNS")*, September 2013.

20 Riverside County Airport Land Use Commission, *Riverside County Airport Land Use Compatibility Plan*, available at: https://rcaluc.org/sites/g/files/aldnop421/files/migrated/Portals-13-19-20--20Vol.-201-20Perris-20Valley-20-Final-Mar.2011-.pdf

6.2 Cumulative Noise Impacts

Cumulative Construction Noise

The Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts that would cease upon completion of construction activities. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, based on the noise analysis above, the Project's construction-related noise impacts would be less than significant.

Construction activities at other planned and approved projects near the Project site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the MDC, and projects requiring discretionary City approvals would require the City to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project site and vicinity. Therefore, Project construction would not result in a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. Cumulative increases in traffic noise levels were estimated by comparing the Existing and Opening Year Without Project scenarios to the Opening Year Plus Project scenario. The traffic analysis considers cumulative traffic from future growth assumed in the transportation model, as well as cumulative projects.

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The following criteria is used to evaluate the combined and incremental effects of the cumulative noise increase.

- *Combined Effect.* The cumulative with Project noise level ("Opening Year With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project.

- *Incremental Effects*. The "Opening Year With Project" causes a 1.0 dBA increase in noise over the "Opening Year Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded, and the resultant noise level exceeds the Normally Acceptable land use compatibility noise standard. Noise, by definition, is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed Project and growth due to occur in the general area would contribute to cumulative noise impacts.

Table 15: Cumulative Off-Site Traffic Noise Levels identifies the traffic noise effects along roadway segments in the Project vicinity for "Existing," "Opening Year Without Project," and "Opening Year With Project," conditions, including incremental and net cumulative impacts. Table 15 shows the combined and incremental effect criterion would be exceeded along Evans Road from Ethanac Road to McLaughlin Road. However, as indicated in Table 15, the Opening Year With Project noise levels along this roadway segment would not exceed the Normally Acceptable land use compatibility standard. As discussed above, a cumulative traffic noise impact would occur if both the combined and incremental effects criteria are exceeded, and the resultant noise level exceeds the Normally Acceptable land use compatibility standard. Therefore, cumulative traffic impacts from the proposed Project would be less than significant.

Table 15: Cumulative Off-Site Traffic Noise Levels

Roadway Segment		Existing[1]	Opening Year Without Project[1]	Opening Year With Project[1]	Combined Effects	Incremental Effects	Normally Acceptable Standard (dBA CNEL)[2]	Cumulatively Significant Impact?[3]
					Difference In dBA Between Existing and Opening Year With Project	Difference In dBA Between Opening Year Without Project and Opening Year With Project		
Ethanac Road	Evans Road to Case Road	70.4	73.8	73.9	3.5	0.1	70	No
	Case Road to I-215 SB Ramps	72.3	74.9	75.1	2.8	0.1	70	No
	I-215 SB Ramps to I-215 NB Ramps	69.4	71.8	71.9	2.5	0.2	70	No
Evans Road	Ethanac Road to McLaughlin Road	40.6	58.9	61.2	20.6	2.4	75[4]	No
Barnett Road	Ethanac Road to McLaughlin Road	59.9	63.1	61.4	1.4	-1.7	70	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level

Notes:
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.
2. The lowest Normally Acceptable land use compatibility noise standard for developed uses along each roadway segment is conservatively used to analyze impacts; see Table 5.
3. A significant impact would result only if both the combined and incremental effects criteria have been exceeded, and the resultant noise level exceeds the Normally Acceptable land use compatibility standard.
4. The Normally Acceptable Standard is reflective of the agricultural use located along Evans Road. However, a residential use is located approximately 645 feet from the centerline of Evans Road. Therefore, traffic noise levels were calculated at a distance of 645 feet from the roadway centerline to ensure roadway noise levels would not be exceeded at the residential use. Refer to Appendix B.

Source: Based on traffic data within the Traffic Study, prepared by Kimley-Horn, September 2023. Refer to Appendix B for traffic noise modeling assumptions and results.

Cumulative Stationary Noise

The stationary noise sources of the proposed Project would not result in an incremental increase in non-transportation noise sources in the Project vicinity. Furthermore, as discussed above, operational noise caused by the proposed Project would be less than significant. Similar to the proposed Project, other planned and approved projects would be required to mitigate for stationary noise impacts at nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there was such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project site and vicinity. Thus, cumulative operational noise impacts from related projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

7 REFERENCES

1. California Department of Transportation, *California Vehicle Noise Emission Levels*, 1987.
2. California Department of Transportation, *Traffic Noise Analysis Protocol*, 2020.
3. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.
4. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020.
5. City of Menifee, *City of Menifee General Plan*, 2013.
6. City of Menifee, *City of Menifee General Plan Noise Background Document and Definitions*, Table N-b3.
7. City of Menifee, *City of Menifee Development Code*, 2021.
8. City of Menifee, *City of Menifee Municipal Code*, current through Ordinance 2023-381, passed August 2, 2023.
9. Cyril M. Harris, *Handbook of Noise Control*, 1979.
10. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.
11. Federal Highway Administration, *Federal Highway Traffic Noise Prediction Model, FHWA-RD77-108*, 1978.
12. Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.
13. Federal Highway Administration, *Noise Fundamentals,* 2017
14. Federal Highway Administration, *Noise Measurement Handbook – Final Report*, 2018.
15. Federal Highway Administration, *Roadway Construction Noise Model*, 2006.
16. Federal Highway Administration, *Roadway Construction Noise Model User's Guide Final Report*, 2006.
17. Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, 1992.
18. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.
19. HPA Architecture, *Master Site Plan,* January 4, 2023.
20. James P. Cowan, *Handbook of Environmental Acoustics,* 1994.
21. Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.
22. Kimley-Horn and Associates, Inc., *Traffic Study for the Northern Gateway Logistics Center Project*, September 2023.
23. Riverside County Airport Land Use Commission, *Riverside County Airport Land Use Compatibility Plan*, available at: https://rcaluc.org/sites/g/files/aldnop421/files/migrated/Portals-13-19-20--20Vol.-201-20Perris-20Valley-20-Final-Mar.2011-.pdf
24. U.S. Department of Labor, Occupational Safety and Health Standards, *29 CFR 1910* (Occupational Noise Exposure).
25. United States Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, NTID300.1, December 31, 1971.
26. United States Environmental Protection Agency, *Protective Noise Levels (EPA 550/9-79-100)*, 1979.

Appendix A

Existing Ambient Noise Measurements

Noise Measurement Field Data

Project:	Northern Gateway Logistics Center	**Job Number:**	094991022
Site No.:	ST-1	**Date:**	11/8/2023
Analyst:	Blake Messmer and Daisy Pineda	**Time:**	1:00 PM
Location:	Along Evans Road, approximately 533 feet from Ethanac Road		
Noise Sources:	Distant traffic, airplane noise, farm animals		
Comments:	Generally Quiet		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
59.0	46.5	70.0	90.2

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	70
Wind (mph):	8
Sky:	Clear
Bar. Pressure:	30 inHg
Humidity:	21%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	ST-1.035.s	Computer's File Name	LxTse_0007061-20231108 140012-ST-1.035.ldbin
Meter	LxT SE 0007061	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-11-08 14:00:12	Duration	0:10:00.0		
End Time	2023-11-08 14:10:12	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-11-08 12:10:28	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	59.0 dB		
LAE	86.8 dB	SEA	--- dB
EA	53.0 µPa²h		
LA_{peak}	90.2 dB	2023-11-08 14:00:13	
LAS_{max}	70.0 dB	2023-11-08 14:00:12	
LAS_{min}	46.5 dB	2023-11-08 14:08:14	
LA_{eq}	59.0 dB		
LC_{eq}	72.9 dB	LC_{eq} - LA_{eq}	13.9 dB
LAI_{eq}	61.6 dB	LAI_{eq} - LA_{eq}	2.6 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
59.0 dB	59.0 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
59.0 dB	59.0 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	59.0 dB		72.9 dB		--- dB	
$Ls_{(max)}$	70.0 dB	2023-11-08 14:00:12	--- dB	None	--- dB	None
$LS_{(min)}$	46.5 dB	2023-11-08 14:08:14	--- dB	None	--- dB	None
$L_{Peak(max)}$	90.2 dB	2023-11-08 14:00:13	--- dB	None	--- dB	None

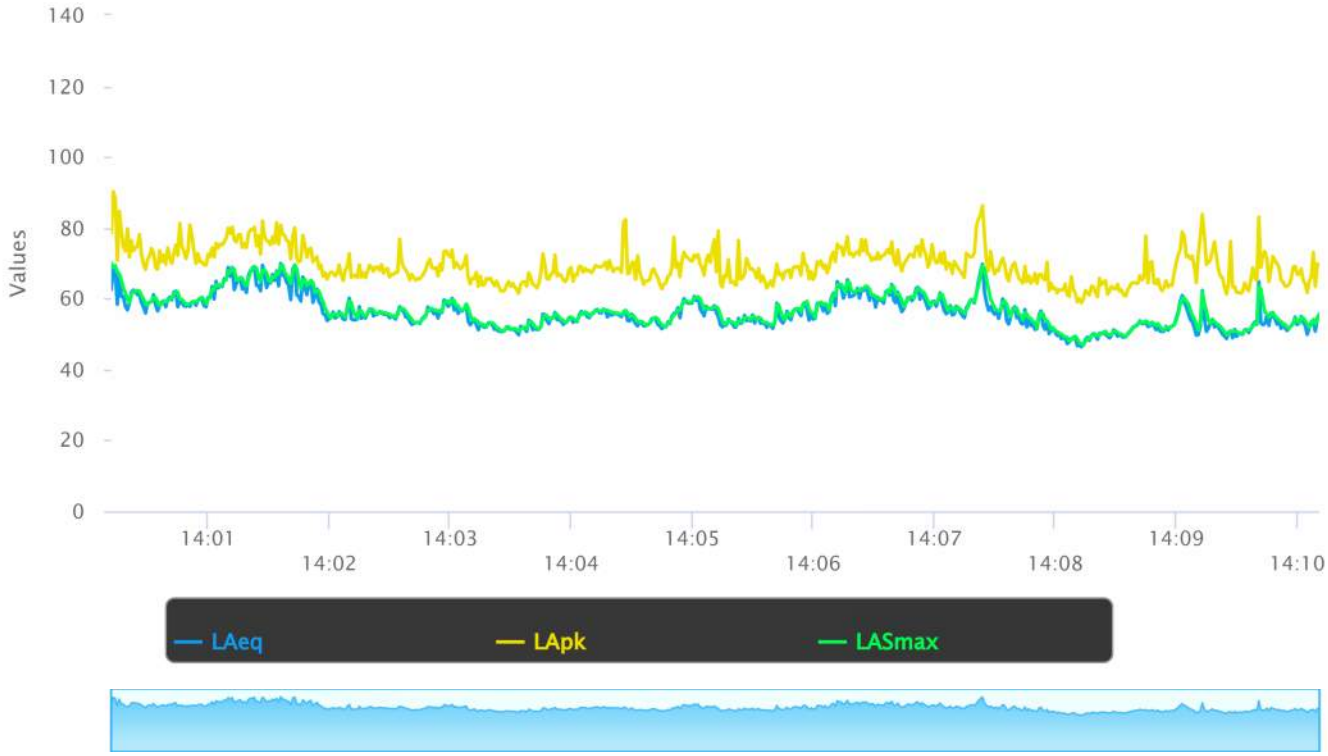
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	65.2 dB
LAS 10.0	62.8 dB
LAS 33.3	57.8 dB
LAS 50.0	55.6 dB
LAS 66.6	53.8 dB
LAS 90.0	51.0 dB

Time History



Noise Measurement Field Data

Project:	Northern Gateway Logistics Center	**Job Number:**	094991022
Site No.:	ST-2	**Date:**	11/8/2023
Analyst:	Blake Messmer and Daisy Pineda	**Time:**	12:40 PM
Location:	Along Evans Road, approximately 750 feet from McLaughlin Road		
Noise Sources:	Distant beeping, distant cars		
Comments:	Generally Quiet		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
50.0	43.9	63.5	85.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	69
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30 inHg
Humidity:	23%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	ST-2.007.s	Computer's File Name	LxTse_0007061-20231108 134052-ST-2.007.ldbin
Meter	LxT SE 0007061	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-11-08 13:40:52	Duration	0:10:00.0		
End Time	2023-11-08 13:50:52	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-11-08 12:10:28	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	50.0 dB		
LAE	77.8 dB	SEA	--- dB
EA	6.7 µPa²h		
LA_{peak}	85.1 dB	2023-11-08 13:41:05	
LAS_{max}	63.5 dB	2023-11-08 13:40:56	
LAS_{min}	43.9 dB	2023-11-08 13:47:06	
LA_{eq}	50.0 dB		
LC_{eq}	72.4 dB	LC_{eq} - LA_{eq}	22.4 dB
LAI_{eq}	53.6 dB	LAI_{eq} - LA_{eq}	3.6 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	50.0 dB	50.0 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	50.0 dB	50.0 dB	--- dB	--- dB

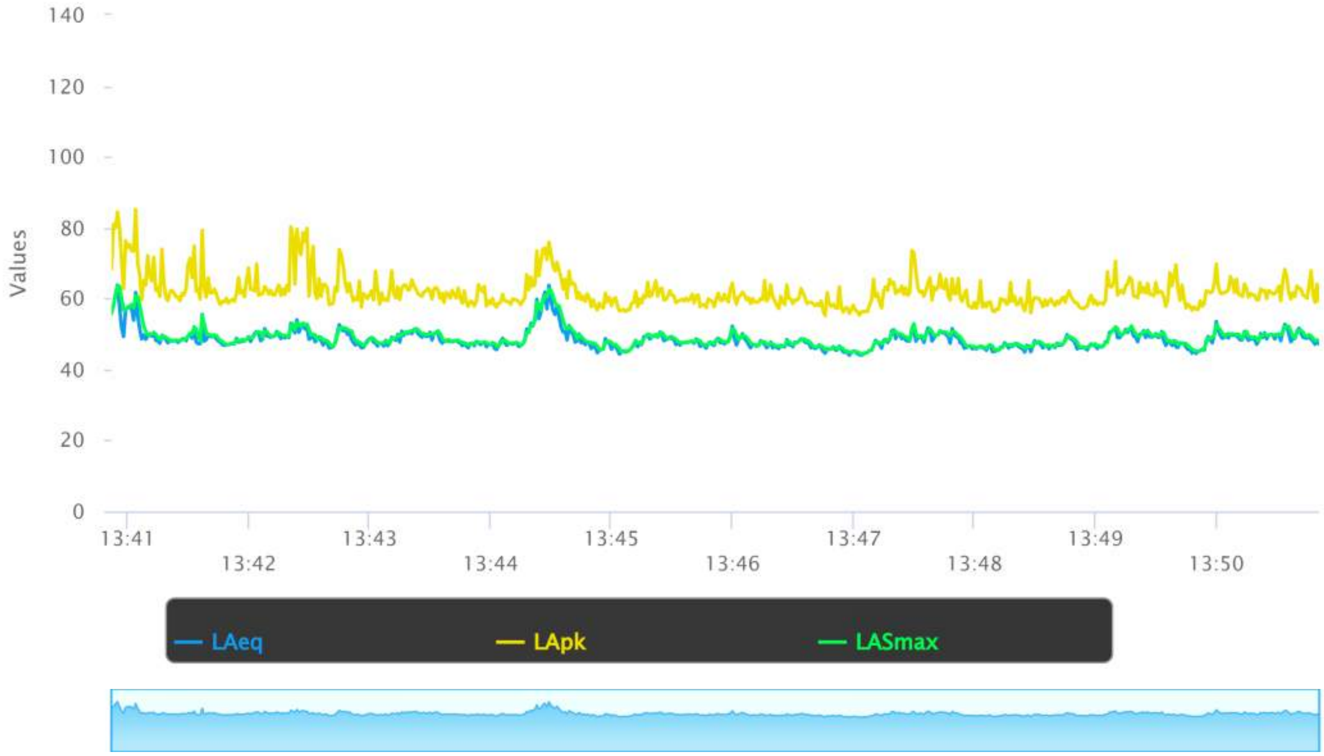
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	50.0 dB		72.4 dB		--- dB	
$Ls_{(max)}$	63.5 dB	2023-11-08 13:40:56	--- dB	None	--- dB	None
$LS_{(min)}$	43.9 dB	2023-11-08 13:47:06	--- dB	None	--- dB	None
$L_{Peak(max)}$	85.1 dB	2023-11-08 13:41:05	--- dB	None	--- dB	None

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	53.0 dB
LAS 10.0	51.0 dB
LAS 33.3	49.2 dB
LAS 50.0	48.1 dB
LAS 66.6	47.3 dB
LAS 90.0	46.1 dB

Time History



Noise Measurement Field Data

Project:	Northern Gateway Logistics Center	**Job Number:**	094991022
Site No.:	ST-3	**Date:**	11/8/2023
Analyst:	Blake Messmer and Daisy Pineda	**Time:**	12:21 PM
Location:	Northeast corner of Sagewood Way and Pearl Blossom Way		
Noise Sources:	Cars		
Comments:	Generally Quiet		

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
56.2	41.1	71.6	85.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	69
Wind (mph):	10
Sky:	Clear
Bar. Pressure:	30 inHg
Humidity:	60%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	ST-4.003.s	Computer's File Name	LxTse_0007061-20231108 132130-ST-4.003.ldbin
Meter	LxT SE 0007061	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-11-08 13:21:30	Duration	0:10:00.0		
End Time	2023-11-08 13:31:30	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-11-08 12:10:28	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	56.2 dB		
LAE	84.0 dB	SEA	--- dB
EA	27.8 µPa²h		
LA_{peak}	85.3 dB	2023-11-08 13:28:41	
LAS_{max}	71.6 dB	2023-11-08 13:28:46	
LAS_{min}	41.1 dB	2023-11-08 13:30:28	
LA_{eq}	56.2 dB		
LC_{eq}	73.0 dB	LC_{eq} - LA_{eq}	16.8 dB
LAI_{eq}	58.7 dB	LAI_{eq} - LA_{eq}	2.5 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
56.2 dB	56.2 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
56.2 dB	56.2 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	56.2 dB		73.0 dB		--- dB	
$Ls_{(max)}$	71.6 dB	2023-11-08 13:28:46	--- dB	None	--- dB	None
$LS_{(min)}$	41.1 dB	2023-11-08 13:30:28	--- dB	None	--- dB	None
$L_{Peak(max)}$	85.3 dB	2023-11-08 13:28:41	--- dB	None	--- dB	None

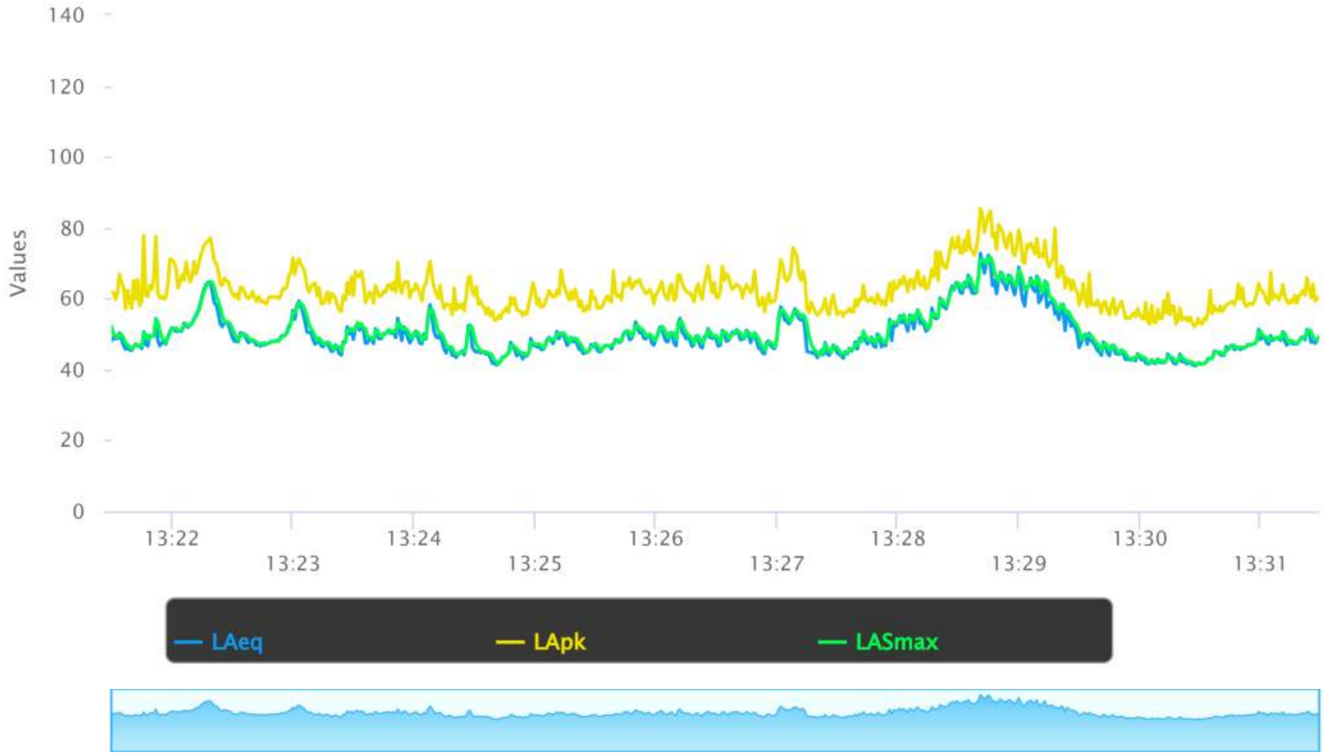
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	63.6 dB
LAS 10.0	59.0 dB
LAS 33.3	50.2 dB
LAS 50.0	48.6 dB
LAS 66.6	47.1 dB
LAS 90.0	44.1 dB

Time History



Noise Measurement Field Data

Project:	Northern Gateway Logistics Center	**Job Number:**	094991022
Site No.:	ST-4	**Date:**	11/8/2023
Analyst:	Blake Messmer and Daisy Pineda	**Time:**	12:01 PM
Location:	Along Barnett Road, approximately 945 feet from McLaughlin Road		

Noise Sources:	Freeway noise, cars passing
Comments:	Generally Quiet

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
60.0	44.5	74.0	92.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	68
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.02 inHg
Humidity:	26%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	ST-5.002.s	Computer's File Name	LxTse_0007061-20231108 130152-ST-5.002.ldbin
Meter	LxT SE 0007061	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-11-08 13:01:52	Duration	0:10:00.0		
End Time	2023-11-08 13:11:52	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-11-08 12:10:28	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	60.0 dB		
LAE	87.8 dB	SEA	--- dB
EA	66.7 µPa²h		
LA_{peak}	92.6 dB	2023-11-08 13:08:30	
LAS_{max}	74.0 dB	2023-11-08 13:07:02	
LAS_{min}	44.5 dB	2023-11-08 13:09:51	
LA_{eq}	60.0 dB		
LC_{eq}	68.0 dB	LC_{eq} - LA_{eq}	8.0 dB
LAI_{eq}	62.8 dB	LAI_{eq} - LA_{eq}	2.8 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
60.0 dB	60.0 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
60.0 dB	60.0 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	60.0 dB		68.0 dB		--- dB	
$Ls_{(max)}$	74.0 dB	2023-11-08 13:07:02	--- dB	None	--- dB	None
$LS_{(min)}$	44.5 dB	2023-11-08 13:09:51	--- dB	None	--- dB	None
$L_{Peak(max)}$	92.6 dB	2023-11-08 13:08:30	--- dB	None	--- dB	None

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	67.2 dB
LAS 10.0	64.0 dB
LAS 33.3	54.0 dB
LAS 50.0	50.4 dB
LAS 66.6	49.0 dB
LAS 90.0	46.2 dB

Appendix B

Noise Modeling Data

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Northern Gateway Logistics Center
Project Number: 94991022
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Ethnac Road	Evans Road to Case Road	4	14	16,845	55	0	7.6%	3.7%	70.4	109	346	1,094	3,459
2	Ethnac Road	Case Road to I-215 SB Ramps	4	14	24,114	55	0	7.9%	4.6%	72.3	169	533	1,687	5,334
3	Ethnac Road	I-215 SB Ramps to I-215 NB Ramps	3	0	19,929	55	0	3.8%	2.1%	69.4	88	278	878	2,778
4	Evans Road	Ethanac Road to McLaughlin Road	2	0	30	35	0	25.0%	0.0%	40.6	-	-	-	-
4*	Evans Road	Ethanac Road to McLaughlin Road	2	0	30	35	0	25.0%	0.0%	32.5	-	-	-	-
5	Barnett Road	Ethanac Road to McLaughlin Road	2	0	2,950	35	0	12.8%	3.6%	59.9	-	-	99	312

[1] Distance is from the centerline of the roadway segment to the receptor location.

* Distance is from the center of the roadway segment to the nearest residential receptor approximatley 645 feet away.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Northern Gateway Logistics Center
Project Number: 94991022
Scenario: Existing Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Ethnac Road	Evans Road to Case Road	4	14	17,297	55	0	7.7%	4.0%	70.6	115	365	1,153	3,647
2	Ethnac Road	Case Road to I-215 SB Ramps	4	14	24,926	55	0	8.0%	5.0%	72.5	179	567	1,793	5,671
3	Ethnac Road	I-215 SB Ramps to I-215 NB Ramps	3	0	20,360	55	0	3.9%	2.4%	69.7	93	295	934	2,952
4	Evans Road	Ethanac Road to McLaughlin Road	2	0	631	35	0	6.4%	12.4%	55.1	-	-	32	102
4*	Evans Road	Ethanac Road to McLaughlin Road	2	0	631	35	0	6.4%	12.4%	47.0	-	-	32	102
5	Barnett Road	Ethanac Road to McLaughlin Road	2	0	3,310	35	0	6.0%	2.5%	58.5	-	-	70	222

[1] Distance is from the centerline of the roadway segment to the receptor location.

* Distance is from the center of the roadway segment to the nearest residential receptor approximatley 645 feet away.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Northern Gateway Logistics Center
Project Number: 94991022
Scenario: Opening Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix			Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Ethnac Road	Evans Road to Case Road	4	14	36,867	55	0	7.6%	3.7%	73.8	239	757	2,394	7,570
2	Ethnac Road	Case Road to I-215 SB Ramps	4	14	44,427	55	0	7.9%	4.6%	74.9	311	983	3,107	9,827
3	Ethnac Road	I-215 SB Ramps to I-215 NB Ramps	3	0	34,226	55	0	3.8%	2.1%	71.8	151	477	1,509	4,771
4	Evans Road	Ethanac Road to McLaughlin Road	2	0	2,008	35	0	25.0%	0.0%	58.9	-	-	77	245
4*	Evans Road	Ethanac Road to McLaughlin Road	2	0	2,008	35	0	25.0%	0.0%	50.8	-	-	77	244
5	Barnett Road	Ethanac Road to McLaughlin Road	2	0	6,108	35	0	12.8%	3.6%	63.1	-	65	204	647

[1] Distance is from the centerline of the roadway segment to the receptor location.

* Distance is from the center of the roadway segment to the nearest residential receptor approximatley 645 feet away.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Northern Gateway Logistics Center
Project Number: 94991022
Scenario: Opening Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Ethnac Road	Evans Road to Case Road	4	14	37,319	55	0	7.7%	3.8%	73.9	245	776	2,453	7,757
2	Ethnac Road	Case Road to I-215 SB Ramps	4	14	45,239	55	0	8.0%	4.8%	75.1	321	1,016	3,214	10,163
3	Ethnac Road	I-215 SB Ramps to I-215 NB Ramps	3	0	34,657	55	0	3.9%	2.3%	71.9	156	494	1,564	4,945
4	Evans Road	Ethanac Road to McLaughlin Road	2	0	2,609	35	0	6.4%	12.4%	61.2	-	42	133	421
4*	Evans Road	Ethanac Road to McLaughlin Road	2	0	2,609	35	0	6.4%	12.4%	53.1	-	42	133	421
5	Barnett Road	Ethanac Road to McLaughlin Road	2	0	6,468	35	0	6.0%	2.5%	61.4	-	43	137	435

[1] Distance is from the centerline of the roadway segment to the receptor location.
* Distance is from the center of the roadway segment to the nearest residential receptor approximatley 645 feet away.
"-" = contour is located within the roadway right-of-way.

Project: Northern Gateway Logistics Center
Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

	Receptor (Land Use, Direction)	Distance (feet)	Shielding
1	Residential, South	823	0
2	Residential, West	1,142	0
3		-	0
4		-	0
5		-	0
6		-	0
7		-	0

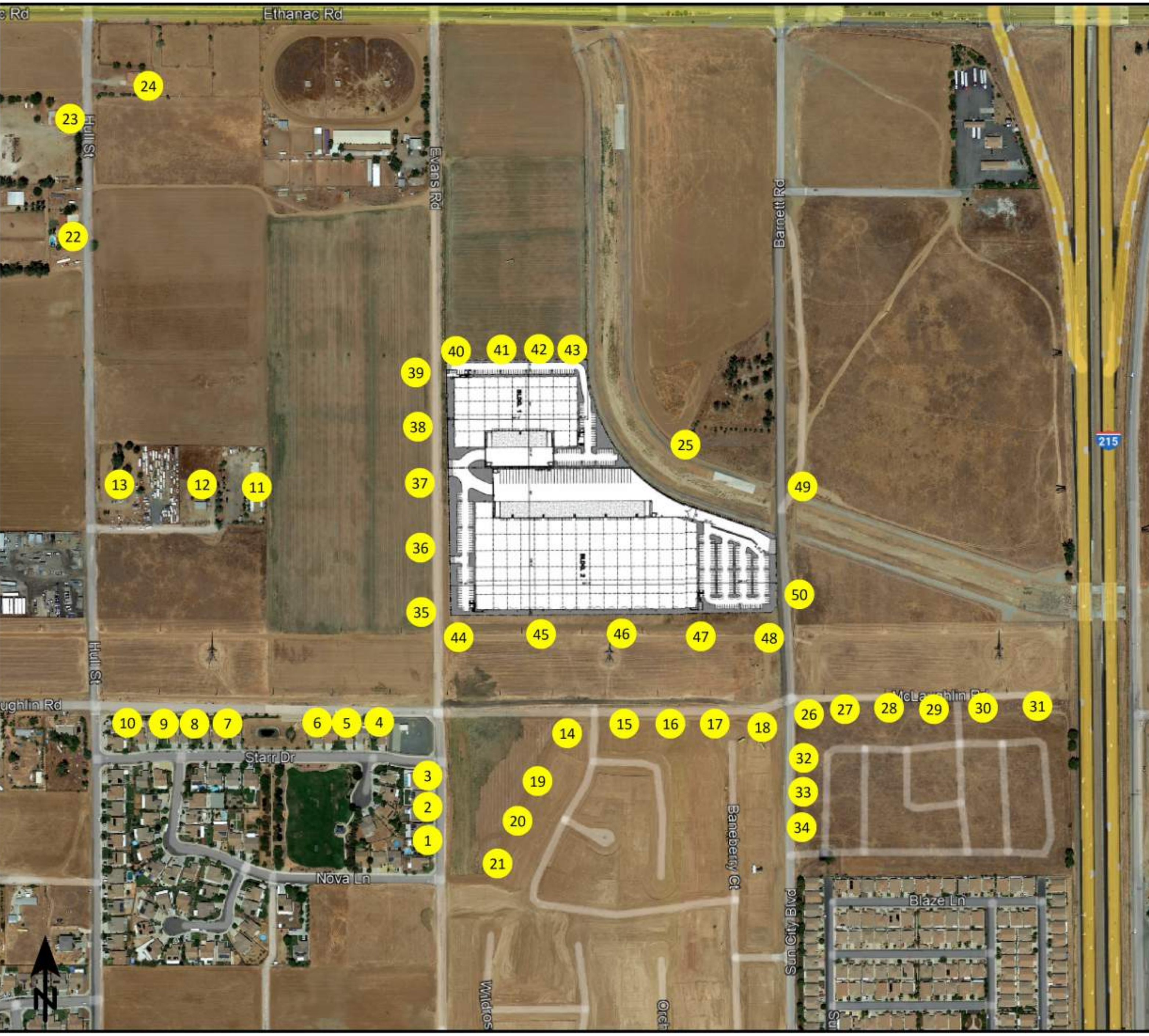
					RECEPTOR 1		RECEPTOR 2	
Construction Phase	**Equipment Type**	**No. of Equip.**	**Acoustical Usage Factor**	**Reference Noise Level at 50ft per Unit, Lmax**	**Noise Level at Receptor 1, Lmax**	**Noise Level at Receptor 1, Leq**	**Noise Level at Receptor 2, Lmax**	**Noise Level at Receptor 2, Leq**
Site Preparation								
	Dozer	3	40%	82	62.1	58.2	59.3	55.3
	Tractor	4	40%	84	65.7	61.7	62.8	58.9
Combined LEQ						**63.3**		**60.5**
Grading								
	Grader	1	40%	85	60.7	56.7	57.8	53.8
	Excavator	2	40%	81	59.4	55.4	56.5	52.6
	Tractor	2	40%	84	62.7	58.7	59.8	55.9
	Scraper	2	40%	84	62.3	58.3	59.4	55.5
	Dozer	1	40%	82	57.4	53.4	54.5	50.5
Combined LEQ						**63.9**		**61.0**
Infrastructure Improvements								
	Tractor	1	40%	84	59.7	55.7	56.8	52.8
	Excavator	1	40%	81	56.4	52.4	53.5	49.5
Combined LEQ						**57.4**		**54.5**
Building Construction								
	Crane	1	16%	81	56.3	48.3	53.4	45.5
	All Other Equipment > 5 HP	3	50%	85	65.4	62.4	62.6	59.6
	Generator	1	50%	81	56.3	53.3	53.4	50.4
	Tractor	3	40%	84	64.4	60.5	61.6	57.6
	Welder/Torch	1	40%	74	49.7	45.7	46.8	42.8
Combined LEQ						**65.0**		**62.2**
Paving								
	Paver	2	50%	77	55.9	52.9	53.0	50.0
	Pavement Scarafier	2	20%	90	68.2	61.2	65.3	58.3
	Roller	2	20%	80	58.7	51.7	55.8	48.8
Combined LEQ						**62.2**		**59.3**
Architectural Coating								
	Compressor (air)	1	40%	78	53.4	49.4	50.5	46.5
Combined LEQ						**49.4**		**46.5**
Overlapping Phases								
Overlapping Phases	Site Prep & Grading					66.6		63.8
Overlapping Phases	Grading, Building Construction, & Paving					68.6		65.8
Overlapping Phases	Building Construction, Paving, Infrastructure Improvements, Architectural Coating					67.4		64.5
Overlapping Phases								
Maximum Noise Level						**68.6**		**65.8**

Source for Ref. Noise Levels: RCNM, 2006

Receptor	Phase	Direction	Distance to Center of Site	Ambient (dBA Leq)	Project Construction Noise Level dBA Leq	Threshold	Exceeds Threshold?	over threshold	Notes
1 Residential, South	Site Preparation	S	823		63.3	80.0	No	--	
	Grading				63.9	80.0	No	--	
	Infrastructure Improvements				57.4	80.0	No	--	
	Building Construction				65.0	80.0	No	--	
	Paving				62.2	80.0	No	--	
	Architectural Coating				49.4	80.0	No	--	
	Overlapping Phases				66.6	80.0	No	--	
	Overlapping Phases				68.6	80.0	No	--	
	Overlapping Phases				67.4	80.0	No	--	
2 Residential, West	Site Preparation	W	1142		60.5	80.0	No	--	
	Grading				61.0	80.0	No	--	
	Infrastructure Improvements				54.5	80.0	No	--	
	Building Construction				62.2	80.0	No	--	
	Paving				59.3	80.0	No	--	
	Architectural Coating				46.5	80.0	No	--	
	Overlapping Phases				63.8	80.0	No	--	
	Overlapping Phases				65.8	80.0	No	--	
	Overlapping Phases				64.5	80.0	No	--	

SoundPLAN Receiver Results				
Receiver No.	Land use	Direction from Project Site	Noise Level	
			Day	Night
			dB(A)	dB(A)
1	Residential	Southwest	35.2	34.8
2	Residential	Southwest	36.1	35.7
3	Residential	Southwest	37.4	36.7
4	Residential	Southwest	37.7	37.2
5	Residential	Southwest	36.8	36.4
6	Residential	Southwest	36.0	35.6
7	Residential	Southwest	33.9	33.5
8	Residential	Southwest	33.2	32.8
9	Residential	Southwest	32.5	32.2
10	Residential	Southwest	31.8	31.5
11	Residential	West	38.1	36.6
12	Residential	West	36.0	34.8
13	Residential	West	33.5	32.6
14	Residential	South	39.1	39.1
15	Residential	South	39.3	39.3
16	Residential	South	38.9	38.9
17	Residential	South	38.2	38.2
18	Residential	South	37.2	37.2
19	Residential	South	37.4	37.4
20	Residential	South	36.1	36.0
21	Residential	South	34.9	34.7
22	Residential	Northwest	30.5	30.1
23	Residential	Northwest	29.2	28.9
24	Residential	Northwest	29.8	29.5
25	Residential	East	46.7	43.4
26	Residential	Southeast	36.4	36.4
27	Residential	Southeast	35.6	35.6
28	Residential	Southeast	34.5	34.5
29	Residential	Southeast	33.4	33.3
30	Residential	Southeast	32.3	32.3
31	Residential	Southeast	31.3	31.2
32	Residential	Southeast	35.6	35.6
33	Residential	Southeast	34.8	34.8
34	Residential	Southeast	34.0	34.0
35	Vacant	West	41.9	40.3
36	Vacant	West	45.5	42.9
37	Vacant	West	50.7	46.4
38	Vacant	West	46.6	43.1
39	Vacant	West	40.5	38.9
40	Vacant	North	38.9	38.0
41	Vacant	North	39.5	38.6
42	Vacant	North	39.3	38.4
43	Vacant	North	42.3	40.0
44	Vacant	South	42.8	40.4
45	Vacant	South	38.8	38.8
46	Vacant	South	39.0	39.0
47	Vacant	South	38.4	38.3
48	Vacant	South	38.5	38.4
49	Vacant	East	40.6	39.0
50	Vacant	East	38.3	38.2

SoundPLAN Essential 5.1.



Northern Gateway Logistics Center

Signs and symbols

Receiver

1 : 6648

0 35 70 140 210 280 m